

What is claimed is:

1. A blade support sub-assembly adapted to be used with a scraper blade for scraping and cleaning a conveyor belt and with a mounting sub-assembly, comprising:

a pair of notched receiving members, each notched receiving member having a notch formed from a front vertical stabilizer and a rear stabilizer, said notch for receiving a scraper blade, and said pair of notched receiving members adapted for use with a mounting sub-assembly;

a face plate extending between said pair of notched receiving members and about parallel to the scraper blade such that at least a portion of the scraper blade rests flush against said face plate when the scraper blade is situated in said pair of notched receiving members; and

a means for vertically adjusting the height of the scraper blade in relation to a fixed position of said pair of notched receiving members such that the scraper blade is in contact with a surface of the conveyor belt to be scraped.

2. The blade support sub-assembly according to claim 1, wherein said means for vertically adjusting the scraper blade within said notches of said pair of notched receiving members comprises a horizontal blade stabilizer approximately perpendicular to and extending beneath said face plate, and one or more adjustable lock bolts extending upward through said horizontal blade stabilizer and in communication with a bottom surface of the scraper blade, wherein rotating one said adjustable lock bolt in a first direction raises said adjustable lock bolt and the scraper blade, and rotating one said adjustable lock bolt in a second direction lowers said adjustable lock bolt and the scraper blade.

3. The blade support sub-assembly according to claim 1, further comprising a means for removably securing the scraper blade within said notches of said pair of notched receiving members.

- 1 4. The blade support sub-assembly according to claim 3, wherein said means for
2 removably securing the scraper blade comprises one or more adjustable screws.
- 1 5. The blade support sub-assembly according to claim 1, further comprising a shield
2 attached to the scraper blade, wherein said shield extends from the scraper blade and
3 over the blade support sub-assembly.
- 1 6. The blade support sub-assembly according to claim 1, wherein said rear vertical
2 stabilizer is taller in height than said front vertical stabilizer.
- 1 7. The blade support sub-assembly according to claim 1, further comprising a scraper
2 blade having a blade insert fixed within a blade housing.
- 1 8. The blade support sub-assembly according to claim 1, further comprising a means for
2 spraying a liquid on the conveyor belt.
- 1 9. The blade support sub-assembly according to claim 8, wherein said means for spraying
2 a liquid comprises a pipeline, for transporting a liquid, having one or more nozzles,
3 a means for restricting a flow of the liquid through said pipeline, and a means for
4 securing said pipeline and said one or more nozzles in proximity to the blade support
5 sub-assembly.
- 1 10. The blade support sub-assembly according to claim 9, further comprising a shield,
2 having one or more holes, attached to the scraper blade, wherein said shield extends
3 from the scraper blade and over the blade support sub-assembly, wherein each of said
4 one or more nozzles of said pipeline aligns with and extends through one of said one
5 or more holes in said shield.
- 1 11. The blade support sub-assembly according to claim 9, wherein said shield is attached
2 to a front of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt ahead of the scraper blade.

1 12. The blade support sub-assembly according to claim 9, wherein said shield is attached
2 to a rear of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt behind the scraper blade.

1 13. The blade support sub-assembly according to claim 8, wherein the liquid is selected
2 from the group consisting of water, a cleaning agent, a solvent, anti-freeze, and a dust
3 inhibitor.

14. A torsion blade holder assembly, comprising:

a mounting sub-assembly comprising:

first hollow member having an inside diameter;

a second member having an outside diameter less than the
inside diameter of said first hollow member and wherein at least a
portion of said second hollow member is situated within said first
hollow member such that a volume of space separates said first hollow
member from said second hollow member;

torsion elements situated in the plurality of spaces between said
first hollow member and said second member thereby resiliently
restricting rotation of said second member within said first hollow
member; and

a blade support sub-assembly according to claim 1.

1 15 The torsion blade holder assembly according to claim 14 further comprising a means
2 for removably securing the scraper blade within said pair of notched receiving
3 members.

1 17 The torsion blade holder assembly according to claim 14, further comprising a shield
2 attached to the scraper blade, wherein said shield extends from the scraper blade and
3 over the blade support member.

1 18. The torsion blade holder assembly according to claim 14, wherein said first hollow
2 member has rounded edges.

1 19. The torsion blade holder assembly according to claim 14, further comprising a means
2 for spraying a liquid.

1 20. The torsion blade holder assembly according to claim 19, wherein said means for
2 spraying comprises a pipeline for transporting a liquid having one or more nozzles, a
3 means for restricting a flow of the liquid through said pipeline, and a means for
4 securing said pipeline and said one or more nozzles in proximity to the blade support
5 sub-assembly.

1 21. A blade support sub-assembly adapted to be used with a scraper blade for scraping and
2 cleaning a conveyor belt and with a mounting sub-assembly, comprising:

3 a pair of notched receiving members, each notched receiving member having
4 a notch formed from a front vertical stabilizer and a rear stabilizer, said notch for
5 receiving a scraper blade, and said pair of notched receiving members adapted for use
6 with a mounting sub-assembly;

7 a face plate extending between said pair of notched receiving members and
8 about parallel to the scraper blade such that at least a portion of the scraper blade rests
9 flush against said face plate when the scraper blade is situated in said pair of notched
10 receiving members; and

11 a means for spraying a liquid on the conveyor belt.

1 22. The blade support sub-assembly according to claim 21, wherein said means for
2 spraying a liquid comprises a pipeline, for transporting a liquid, having one or more
3 nozzles, a means for restricting a flow of the liquid through said pipeline, and a means
4 for securing said pipeline and said one or more nozzles in proximity to the blade
5 support sub-assembly.

1 23. The blade support sub-assembly according to claim 21, further comprising a shield,
2 having one or more holes, attached to the scraper blade, wherein said shield extends
3 from the scraper blade and over the blade support sub-assembly, wherein each of said
4 one or more nozzles of said pipeline aligns with and extends through one of said one
5 or more holes in said shield.

1 24. The blade support sub-assembly according to claim 23, wherein said shield is attached
2 to a front of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt ahead of the scraper blade.

25. The blade support sub-assembly according to claim 23, wherein said shield is attached
to a rear of the scraper blade such that the liquid is sprayed at a point on a conveyor
belt behind the scraper blade.

26. The blade support sub-assembly according to claim 21, wherein the liquid is selected
from the group consisting of water, a cleaning agent, a solvent, anti-freeze, and a dust
inhibitor.

1 ~~27. A method for vertically adjusting a scraper blade in a blade support member,~~
2 comprising the steps of:

3 (a) positioning a scraper blade within a pair of notched receiving members,
4 each notched receiving member having a notch formed from a front vertical stabilizer
5 and a rear stabilizer, said notch for receiving the scraper blade, and said pair of
6 notched receiving members adapted for use with a mounting sub-assembly;

7 (b) vertically adjusting the height of the scraper blade in relation to a fixed
8 position of said pair of notched receiving members such that the scraper blade is in
9 contact with a surface of the conveyor belt to be scraped; and

10 (c) scraping the conveyor belt with the scraper blade.

1 28. The method according to claim 27, further comprising a face plate extending between
2 said pair of notched receiving members and about parallel to the scraper blade such
3 that at least a portion of the scraper blade rests flush against said face plate when the
4 scraper blade is situated in said pair of notched receiving members, and a horizontal
5 blade stabilizer approximately perpendicular to and extending beneath said face plate,
6 and one or more adjustable lock bolts extending upward through said horizontal blade
7 stabilizer and in communication with a bottom surface of the scraper blade, such that
8 said step (b) comprises rotating one or more of said adjustable lock bolts, wherein
9 rotating one said adjustable lock bolt in a first direction raises said adjustable lock bolt
10 and a portion of the scraper blade, and rotating one said adjustable lock bolt in a
11 second direction lowers said adjustable lock bolt and the portion of the scraper blade.

12 29. The method according to claim 27, further comprising the step of:

13 (d) spraying the conveyor belt with a liquid either just prior to or
14 immediately after said step (c).

15 30. A method for cleaning a conveyor belt, comprising the steps of:

16 (a) positioning a scraper blade with a shield within a pair of receiving
17 members such that the scraper blade is in contact with a surface of the conveyor belt
18 to be cleaned, each receiving member having a means for securing the scraper blade
19 and said pair of receiving members adapted for use with a mounting sub-assembly;

20 (b) spraying the surface of the conveyor belt to be cleaned with a liquid,
21 the liquid being transported through a pipeline and emitting from one or more nozzles
22 protruding through said shield of the scraper blade; and

23 (c) scraping the conveyor belt with the scraper blade.